

INDIANA UTILITY REGULATORY COMMISSION ELECTRIC UTILITY RELIABILITY REPORT 2021

Each investor-owned electric utility (IOU) in Indiana is required to file a reliability report annually with the Indiana Utility Regulatory Commission (Commission) in compliance with 170 IAC 4-1-23(e). This document serves as a compilation of the reports filed for 2021 and provides data beginning in 2010. This Report includes a graph for each IOU to illustrate the trends in these reliability metrics through 2021. Given that there have been changes to the reliability metrics, we have truncated the tables to primarily emphasize the information from 2010 to the present.

The utilities provide the following three reliability indices in their annual reports to the IURC.

- System Average Interruption Frequency Index (SAIFI): This is the average number of interruptions per customer. It is calculated by dividing the total number of customer interruptions by the total number of customers.
- System Average Interruption Duration Index (SAIDI): SAIDI is the average minutes of interruption per customer. It is calculated by dividing the sum of all customer interruption durations (in minutes) by the total number of customers.
- Customer Average Interruption Duration Index (CAIDI): CAIDI is the average duration of interruptions or the time to restore service to interrupted customers. It is calculated by dividing SAIDI by SAIFI.

Each utility reports its reliability indices with and without major events days (Major Event Days or MEDs). Major events are primarily storms or weather events that are more destructive than normal storm patterns. However, major events may also include ice storms, earthquakes, floods, fires, high winds / tornados, and other disasters. Institute of Electrical and Electronics Engineers (IEEE) Standard 1366 involves the calculation of a threshold of SAIDI minutes based on data from the previous five years. Any day the threshold is exceeded, it constitutes a MED. The provision of indices that exclude major events normalizes the data by eliminating interruptions over which the utility has little or no control. In addition, there can be considerable variation in a wide range of major events that result in significant damage and require time to make needed repairs. The following table summarizes the number of MEDs and Major Events for each IOU in Indiana during 2021. Note: a single event can carry over to additional days that result in multiple MEDs.

UTILITY COMPANY	MAJOR EVENT DAYS	MAJOR EVENTS
Duke Energy Indiana, LLC	4	3
Indiana Michigan Power Company	9	6
Indianapolis Power & Light Company (dba AES Indiana)	8	8
Northern Indiana Public Service Company, LLC	11	10
CenterPoint Energy Indiana (formerly Vectren)	2	1

Reliability metrics, used appropriately, provide useful information on each utility's distribution system, especially if the metrics are considered over several years to lessen the potential that a short series of information may be atypical. Care should be taken when making comparisons between utilities because they all experience different circumstances (e.g., some serve areas that are more densely populated, some serve multistory office buildings that may be counted as a single customer, heavily forested areas may pose a greater risk of outages, weather differences, age of infrastructure). In addition to the causes of outages that were mentioned previously and are beyond the control of electric utilities, the solutions for improving future reliability are likely to be different for each utility. It is also important to note that perfect reliability is not attainable and efforts to improve these metrics are often expensive.

Consistent with the legislative direction to the Commission for utilities to maintain and enhance system reliability, such as the transmission, distribution, and storage improvement charge (TDSIC) statute, the Commission encourages utilities to continue to look for ways to detect problems, expedite repairs, and recovery from major events. The Commission has also ordered all of these investor-owned utilities to work with their stakeholders in collaboratives that include discussions on how to improve system reliability.

This Report provides an opportunity for policymakers, utilities, and customers to better understand the evolution of reliability improvements. When compared to Commission ordered annual performance metric reports that cover a range of utility operations, the reliability statistics can be placed in a broader context of utility performance measured over time.

Investor-Owned Electric Service Territories



Service Territories	Power Generation Facilities*
■ I&M	
■ NIPSCO	
■ Duke Energy	
■ IPL	
■ Vectren	

* Power generation stations may be located outside a utility's service area.

History of Major Event Days for Investor-Owned Utilities in Indiana

Major Event Days for Investor Owned Utilities 2010-2021													
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Mean
NIPSCO	9	22	17	3	18	10	10	4	5	8	13	11	11
Duke	5	12	4	3	5	6	4	10	7	9	6	4	6
AES-IN	0	0	6	3	5	6	9	3	5	12	6	8	5
CtrPoint	0	2	4	1	6	2	3	3	5	4	1	2	3
I&M	6	4	9	3	5	4	3	3	7	6	5	9	5

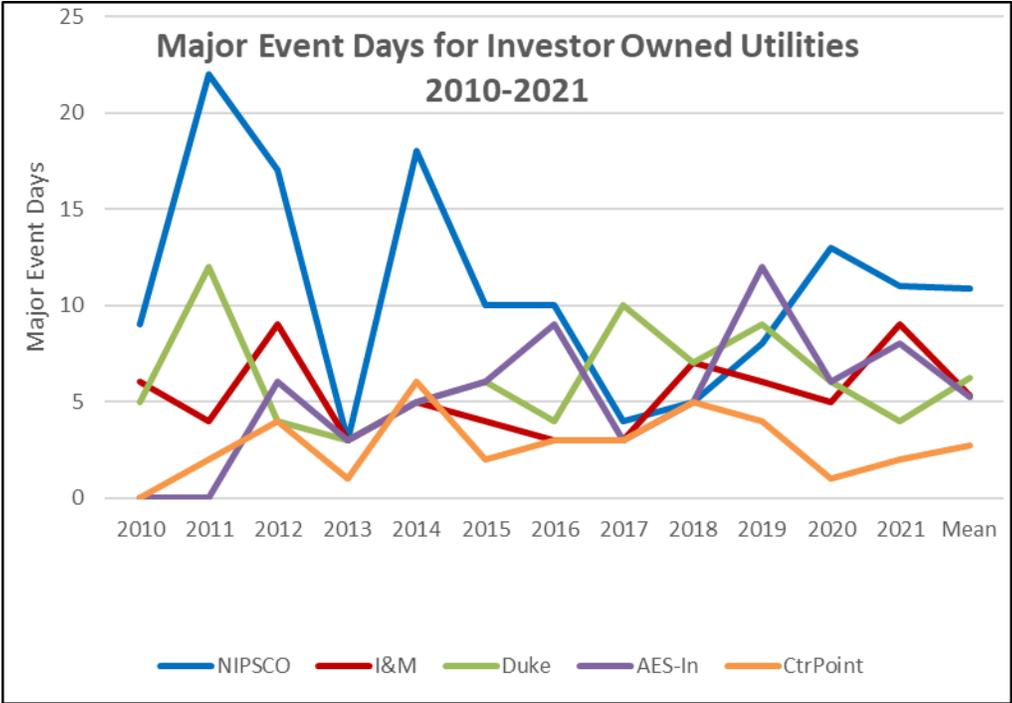
Electric Reliability Including Major Events*												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
NIPSCO												
SAIFI	1.36	1.38	1.44	1.45	1.53	1.16	1.26	1.11	1.33	1.58	1.26	1.55
SAIDI	505.00	371.00	428.00	520.00	603.00	248.00	231.00	153.00	244.26	359.00	473.00	529.00
CAIDI	372.00	269.00	297.00	359.00	395.00	214.00	184.00	138.00	184.00	227.00	374.00	341.00
Duke												
SAIFI	1.58	2.07	1.52	1.38	1.31	1.27	1.34	1.33	1.45	1.38	1.25	1.11
SAIDI	195.00	630.00	216.00	257.00	186.00	211.00	289.79	261.00	366.00	220.60	279.00	203.10
CAIDI	124.00	304.00	143.00	187.00	142.00	166.10	216.69	196.00	252.90	160.00	223.00	182.30
AES-IN												
SAIFI	1.04	0.86	1.04	0.71	0.96	0.94	1.17	0.95	1.13	1.22	1.16	1.61
SAIDI	71.15	75.08	124.92	92.30	189.98	219.45	232.23	80.00	149.03	213.12	155.00	176.39
CAIDI	68.13	87.63	119.66	130.01	198.63	233.12	198.48	85.00	131.42	174.55	133.00	109.76
CenterPoint												
SAIFI	1.02	2.16	1.24	0.78	1.47	0.90	1.26	0.8	1.09	1.37	1.00	0.87
SAIDI	89.70	711.30	117.30	60.10	314.30	81.30	260.90	86.00	140.40	174.00	121.90	78.60
CAIDI	88.30	329.90	94.90	76.60	213.50	90.60	206.90	107.00	128.50	127.30	121.00	89.90
I&M												
SAIFI	0.98	1.12	1.39	0.96	0.96	1.24	1.06	1.11	1.28	1.38	1.12	1.13
SAIDI	392.30	258.00	1071.2	374.50	305.90	390.30	255.00	257.90	262.80	281.90	300.30	426.20
CAIDI	399.80	230.30	772.50	392.00	317.80	313.90	240.60	233.30	206.00	204.20	268.30	377.70

Notes

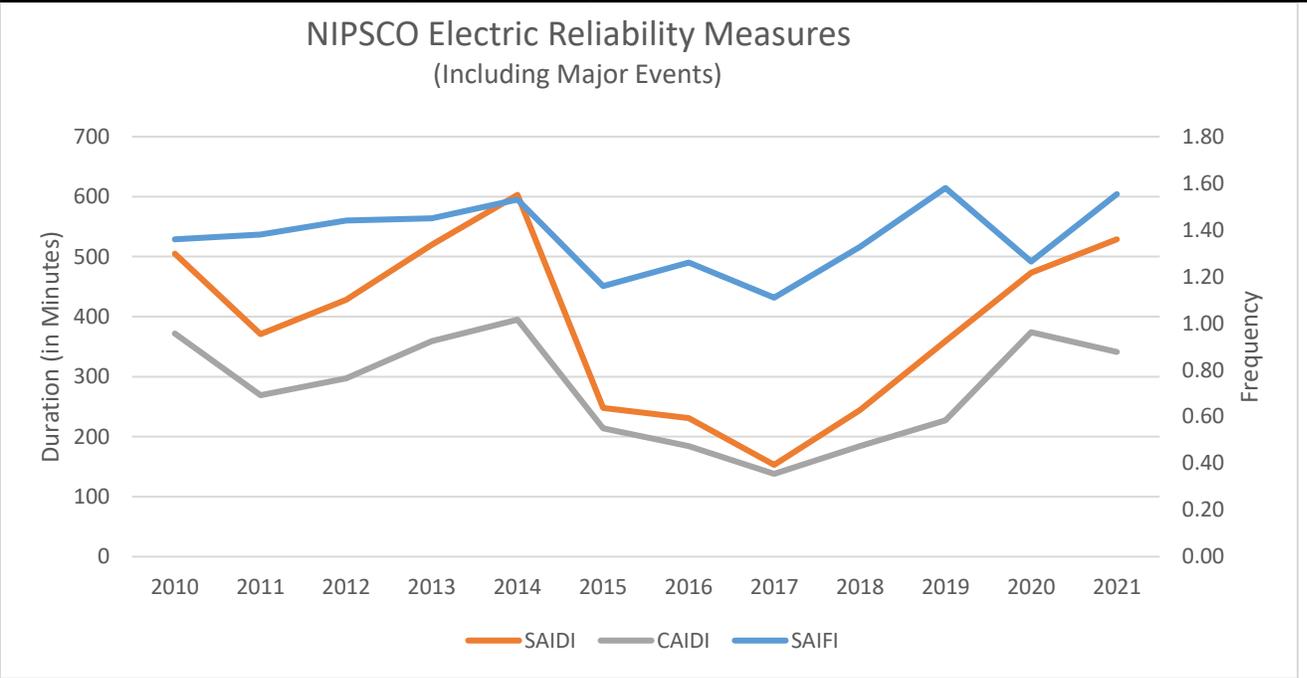
SAIFI: System Average Interruption Frequency Index; (# of customers who experience outage) / (total # of customers)

SAIDI: System Average Interruption Duration Index; (duration or time of service interruptions) / (total # of customers)

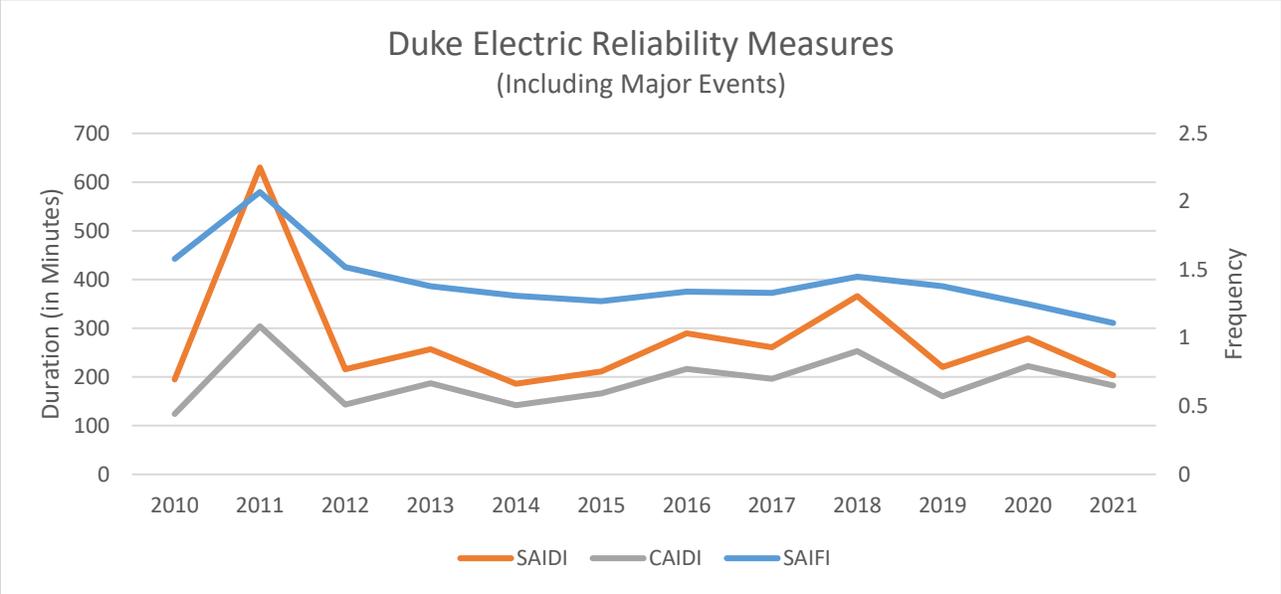
CAIDI: Customer Average Interruption Duration Index; (SAIDI) / (SAIFI)



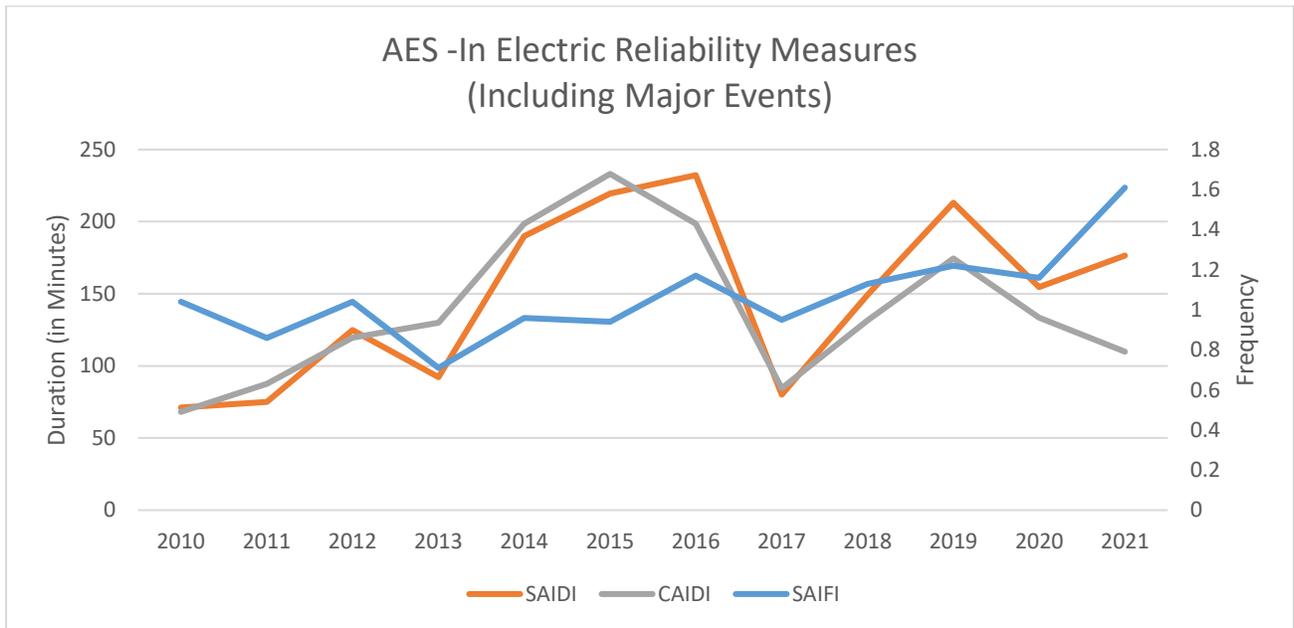
Electric Reliability Including Major Events													
NIPSCO		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
SAIFI		1.36	1.38	1.44	1.45	1.53	1.16	1.26	1.11	1.33	1.58	1.264	1.55
SAIDI		505	371	428	520	603	248	231	153	244	359	473	529
CAIDI		372	269	297	359	395	214	184	138	184	227	374	341



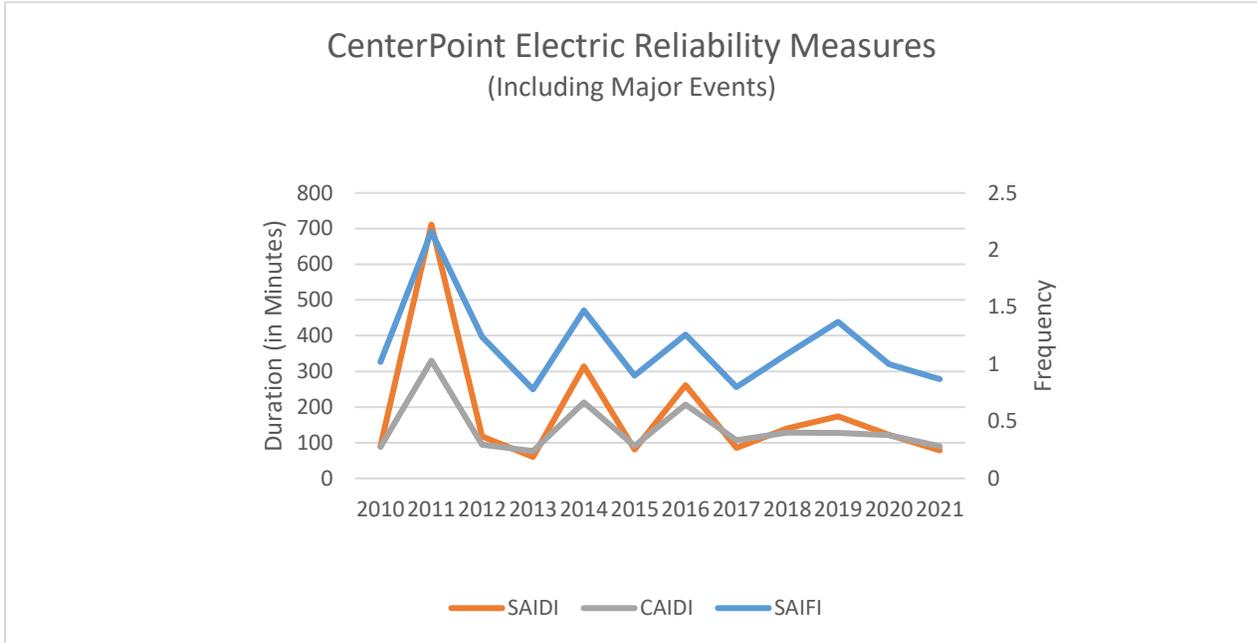
Electric Reliability Including Major Events												
Duke	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	SAIFI	1.58	2.07	1.52	1.38	1.31	1.27	1.34	1.33	1.45	1.38	1.25
SAIDI	195	630	216	257	186	211	290	261	366	221	279	203.1
CAIDI	124	304	143	187	142	166	217	196	253	160	223	182.3



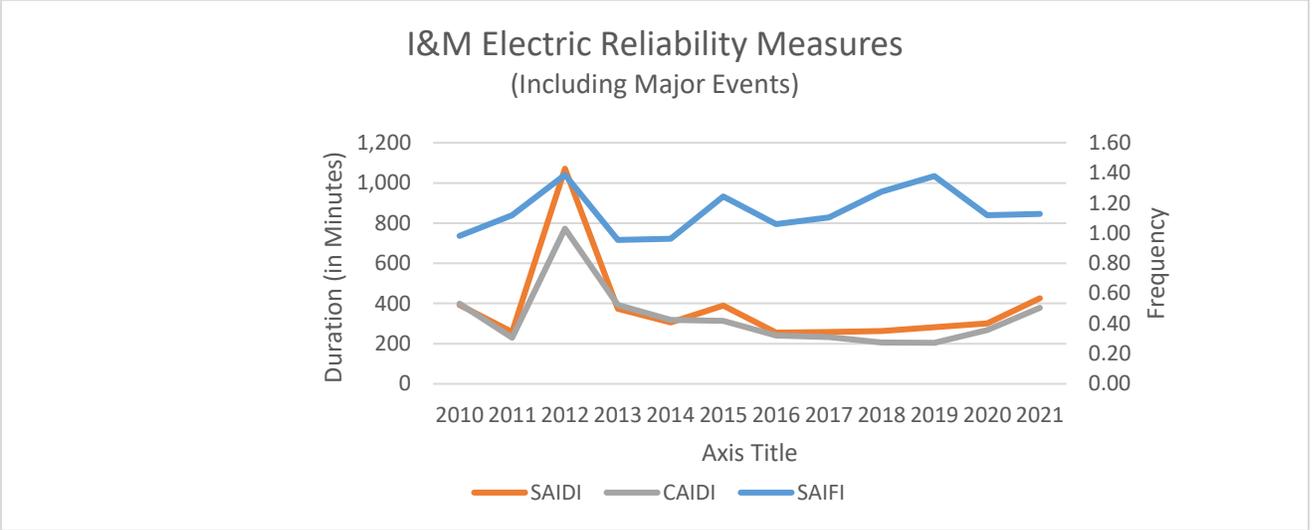
Electric Reliability Including Major Events													
AES-In		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	<i>SAIFI</i>	1.04	0.86	1.04	0.71	0.96	0.94	1.17	0.95	1.13	1.22	1.16	1.61
	<i>SAIDI</i>	71	75	125	92	190	219	232	80	149	213	155	176.39
	<i>CAIDI</i>	68	88	120	130	199	233	198	85	131	175	133	109.76



Electric Reliability Including Major Events												
CenterPoint	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
SAIFI	1.02	2.16	1.24	0.78	1.47	0.9	1.26	0.8	1.09	1.37	1	0.87
SAIDI	90	711	117	60	314	81	261	86	140	174	122	78.6
CAIDI	88	330	95	77	214	91	207	107	129	127	121.4	89.9



Electric Reliability Including Major Events												
I&M	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
SAIFI	0.98	1.12	1.39	0.96	0.96	1.24	1.06	1.11	1.28	1.38	1.119	1.128
SAIDI	392	258	1,071	375	306	390	255	258	263	282	300.3	426.2
CAIDI	400	230	773	392	318	314	241	233	206	204	268.3	377.7



Electric Reliability Not Including Major Events (Without Major Events)												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
NIPSCO												
SAIFI	0.94	0.92	0.83	0.78	0.84	0.87	0.99	1.00	1.09	1.07	0.90	1.06
SAIDI	122.00	126.00	102.00	95.00	94.00	110.00	135.00	129.94	151.38	155.00	138.00	175.00
CAIDI	130.00	137.00	123.00	122.00	111.00	127.00	136.00	129.00	139.00	145.00	153.00	165.00
Duke												
SAIFI	1.32	1.27	1.29	1.17	1.16	1.03	1.10	0.99	1.06	1.07	0.95	0.94
SAIDI	138.00	146.00	149.00	138.00	140.00	121.00	142.49	138.30	156.20	140.40	121.00	127.10
CAIDI	104.00	115.00	115.00	118.00	121.00	117.50	129.60	139.60	148.00	131.60	127.20	135.90
AES-IN												
SAIFI	1.04	0.86	0.82	0.58	0.71	0.66	0.74	0.86	0.95	0.88	0.93	1.32
SAIDI	71.15	75.08	56.71	48.33	56.71	48.70	61.64	59.64	67.46	75.60	73.00	104.44
CAIDI	68.13	87.63	69.57	82.78	80.24	73.70	82.85	69.05	71.08	85.52	79.00	79.42
CenterPoint												
SAIFI	1.02	1.43	1.07	0.73	0.92	0.85	0.82	0.64	0.80	1.08	0.86	0.82
SAIDI	89.70	137.00	83.00	47.50	67.20	70.90	61.30	58.80	78.30	100.40	78.00	69.70
CAIDI	88.30	95.70	77.50	65.10	73.00	82.90	74.40	91.60	97.60	92.80	91.00	85.30
I&M												
SAIFI	0.74	0.99	0.91	0.74	0.77	1.05	0.95	0.98	1.10	1.19	0.937	0.86
SAIDI	111.30	153.70	136.70	113.70	127.50	160.10	152.90	166.30	175.70	189.40	154.1	148.40
CAIDI	150.90	156.10	151.10	154.00	165.40	152.60	160.80	170.20	159.70	159.80	164.5	173.20

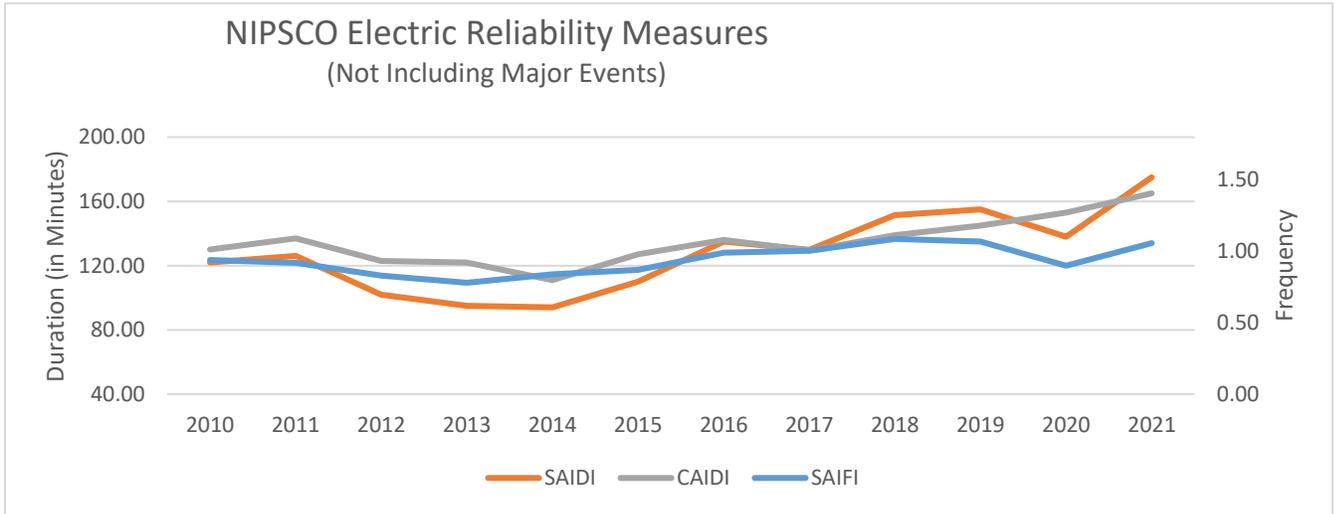
Notes

SAIFI: System Average Interruption Frequency Index; (# of customers who experience outage) / (total # of customers)

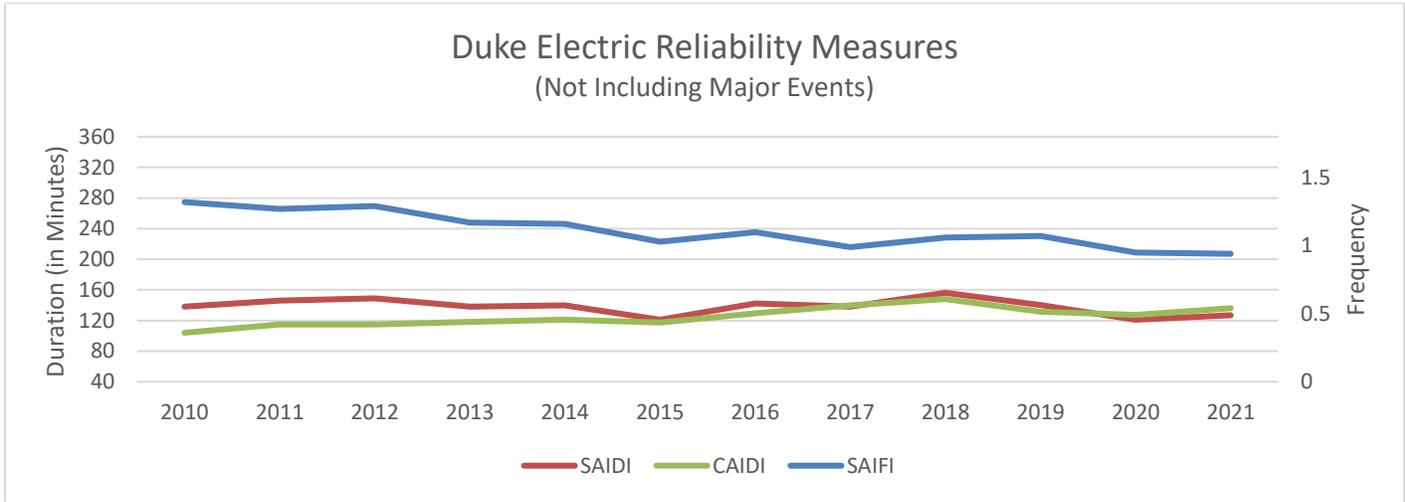
SAIDI: System Average Interruption Duration Index; (duration or time of service interruptions) / (total # of customers)

CAIDI: Customer Average Interruption Duration Index; (SAIDI) / (SAIFI)

Electric Reliability Not Including Major Events -(Without a Major Event)													
NIPSCO		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	SAIFI	0.94	0.92	0.83	0.78	0.84	0.87	0.99	1	1.087	1.068	0.901	1.058
	SAIDI	122	126	102	95	94	110	135	129.94	151.38	155	138	175
	CAIDI	130	137	123	122	111	127	136	129	139	145	153	165

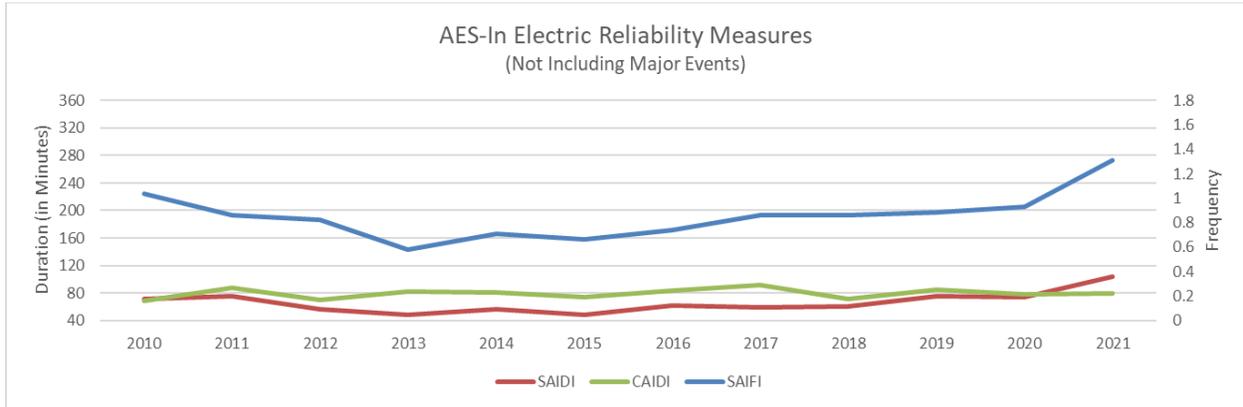


Electric Reliability Not Including Major Events (Without Major Events)												
Duke	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
SAIFI	1.32	1.27	1.29	1.17	1.16	1.03	1.10	0.99	1.06	1.07	0.95	0.94
SAIDI	138.00	146.00	149.00	138.00	140.00	121.00	142.49	138.30	156.20	140.40	121.00	127.10
CAIDI	104.00	115.00	115.00	118.00	121.00	117.50	129.60	139.60	148.00	131.60	127.20	135.90



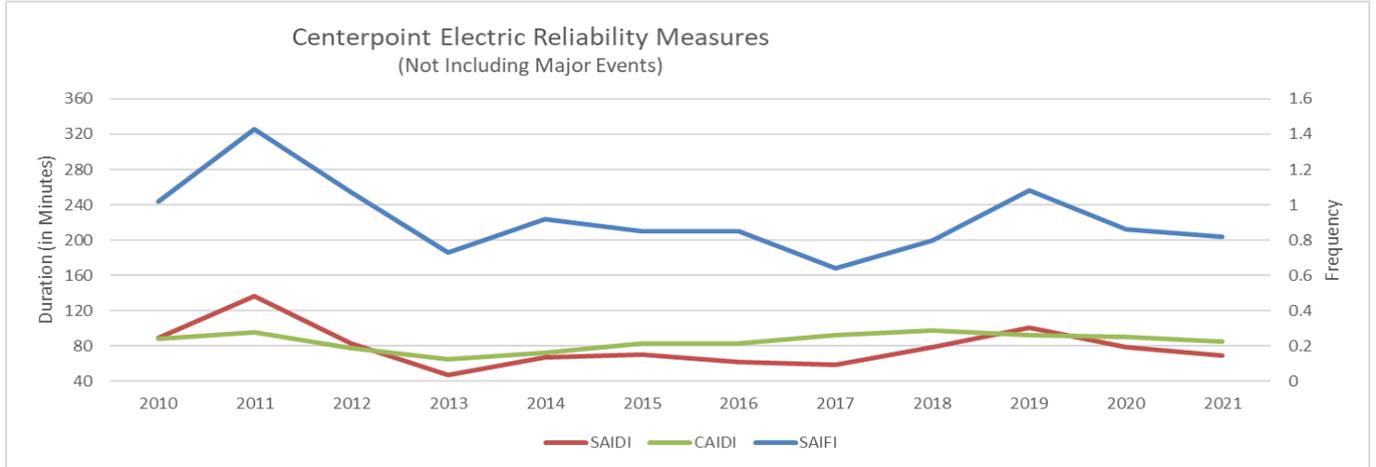
Electric Reliability Not Including Major Events (Without Major Events)

AES-IN	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	SAIFI	1.04	0.86	0.82	0.58	0.71	0.66	0.74	0.86	0.95	0.88	0.93
SAIDI	71.15	75.08	56.71	48.33	56.71	48.70	61.64	59.64	67.46	75.60	73.00	104.44
CAIDI	68.13	87.63	69.57	82.78	80.24	73.70	82.85	69.05	71.08	85.52	79.00	79.42



Electric Reliability Not Including Major Events (Without Major Events)

CenterPoint	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
SAIFI	1.02	1.43	1.07	0.73	0.92	0.85	0.82	0.64	0.80	1.08	0.86	0.82
SAIDI	89.70	137.00	83.00	47.50	67.20	70.90	61.30	58.80	78.30	100.40	78.00	69.70
CAIDI	88.30	95.70	77.50	65.10	73.00	82.90	74.40	91.60	97.60	92.80	91.00	85.30



Electric Reliability Not Including Major Events (without a major event)												
I&M	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	SAIFI	0.74	0.99	0.91	0.74	0.77	1.05	0.95	0.98	1.10	1.19	0.937
SAIDI	111	154	137	114	128	160	153	166	176	189	154.1	148.4
CAIDI	151	156	151	154	165	153	161	170	160	160	164.5	173.2

